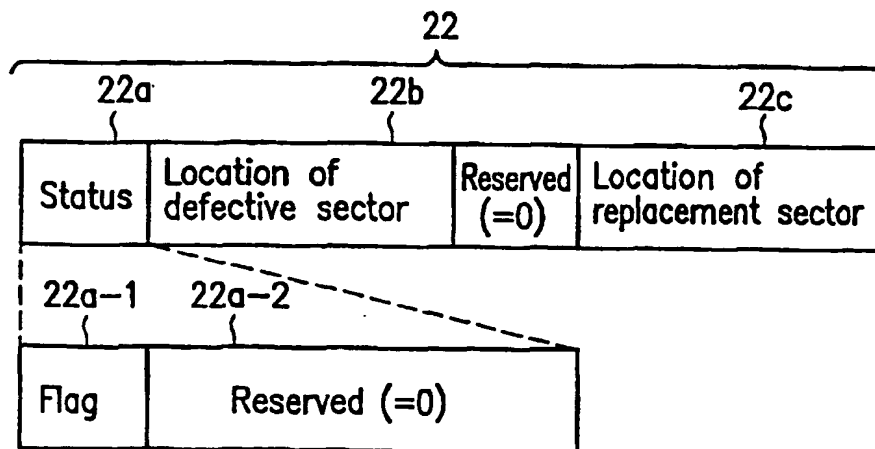




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : G11B 20/18		A1	(11) International Publication Number: WO 00/54274
			(43) International Publication Date: 14 September 2000 (14.09.00)
(21) International Application Number: PCT/JP99/04889 (22) International Filing Date: 8 September 1999 (08.09.99) (30) Priority Data: 11/59781 8 March 1999 (08.03.99) JP (71) Applicant: MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD. [JP/JP]; 1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8501 (JP). (72) Inventors: ITO, Motoshi; 17-25-302, Furuichi 3-chome, Joto-ku, Osaka-shi, Osaka 536-0001 (JP). UEDA, Hiroshi; 4-3426, Gotenyama Minamimachi, Hirakata-shi, Osaka 573-1193 (JP). GOTOH, Yoshiho; 5-1-3, Higashinakahama, Joto-ku, Osaka-shi, Osaka 536-0023 (JP). FUKUSHIMA, Yoshihisa; 14-C-508, Sekime 6-chome, Joto-ku, Osaka-shi, Osaka 536-0008 (JP). (74) Agent: YAMAMOTO, Shusaku; 15th floor, Crystal Tower, 2-27, Shiromi 1-chome, Chuo-ku, Osaka-shi, Osaka 540-6015 (JP).		(81) Designated States: CN, ID, KR, MX. Published <i>With international search report.</i>	

(54) Title: INFORMATION RECORDING MEDIUM, INFORMATION RECORDING METHOD, INFORMATION RECORDING APPARATUS AND INFORMATION REPRODUCING APPARATUS



(57) Abstract

An information recording medium of the present invention includes: a volume space in which user data is recorded; a spare area including a replacement area which may be used in place of a defective area included in the volume space; and a defect management information area in which defect management information for managing the defective area is recorded. The defect management information includes status information indicating whether the defective area is replaced by the replacement area.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:

LEE, Young-Pil

The Cheonghwa Building, 1571-18, Seocho-dong, Seocho-gu,
Seoul 137-874, Republic of Korea



PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing
(day/month/year) 05 JULY 2004 (05.07.2004)

Applicant's or agent's file reference

SH-19504-PCT

FOR FURTHER ACTION See paragraphs 1 and 4 below

International application No.

PCT/KR2004/000928

International filing date
(day/month/year)

22 APRIL 2004 (22.04.2004)

Applicant

SAMSUNG ELECTRONICS CO., LTD.

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/KR



Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

COMMISSIONER

Telephone No. 82-42-481-5762



Form PCT/ISA/220 (January 2004)

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference SH-19504-PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/KR2004/000928	International filing date (day/month/year) 22 APRIL 2004 (22.04.2004)	(Earliest) Priority Date (day/month/year) 01 MAY 2003 (01.05.2003)
Applicant SAMSUNG ELECTRONICS CO., LTD.		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☐ Unity of invention is lacking (See Box No. III)

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 7

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

b. ☐ none of the figure is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2004/000928**A. CLASSIFICATION OF SUBJECT MATTER**

IPC7 G11B 7/004

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G11B H04N5

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Patent Abstracts

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 00/54274 A1(Matsushita Electric Industrial Co. Ltd.) 14 September 2000 see Abstract, all Claims, Fig.1 - Fig.5	1 - 21
A	US 2002/0136537 A1(Hideki Takahashi, Kashiwa-shi) 26 September 2002 see Abstract, paragraph [0076], all Claims, Figs.1, 5, 6, 13 - 19	1, 8, 16
A	US 6529458 B1(LG Electronics Inc.) 4 March 2003 see Abstract, all Claims, Figs.1, 5, 6, 9	1, 8, 16
P, A	KR 2004-0028469 A(LG Electronics Inc.) 3 April 2004 see Abstract, Claims 1 - 5	1 - 5, 8 - 11, 16 - 19

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

- *"A" document defining the general state of the art which is not considered to be of particular relevance
- *"E" earlier application or patent but published on or after the international filing date
- *"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
- *"O" document referring to an oral disclosure, use, exhibition or other means
- *"P" document published prior to the international filing date but later than the priority date claimed

- *"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *"&" document member of the same patent family


Date of the actual completion of the international search

05 JULY 2004 (05.07.2004)

Date of mailing of the international search report

05 JULY 2004 (05.07.2004)

Name and mailing address of the ISA/KR

 Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

LEE, Bo Hyoung

Telephone No. 82-42-481-5701



Form PCT/ISA/210 (second sheet) (January 2004)

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2004/000928

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 00/54274 A1	14.09.2000	US 20010043525 A1	22.11.2001
		US 6385148 B2	07.05.2002
		US 6304534 B1	16.10.2001
		US 6295257 B1	25.09.2001
		US 6292445 B1	18.09.2001
		US 6160778	12.12.2000
		JP 12-322838 A2	24.11.2000
		JP 12-322837 A2	24.11.2000
		JP 12-322836 A2	24.11.2000
		JP 12-322835 A2	24.11.2000
		JP 3075478 B2	14.08.2000
		JP 3075477 B2	14.08.2000
		JP 3040779 B2	15.05.2000
		EP 1043723 A1	11.10.2000
US 2002/0136537 A1	26.09.2002	EP 1041561 A2	04.10.2000
		EP 1041560 A2	04.10.2000
US 6529458 B1	04.03.2003	EP 1041559 A2	04.10.2000
		JP 14-288938 A2	04.10.2002
		CN 1381839 A	27.11.2002
		US 20030133379 A1	17.07.2003
		KR 2000-0021178 A	15.04.2000
KR 2004-0028469 A	03.04.2004	JP 15-308663 A2	31.10.2003
		JP 12-105980 A2	11.04.2000
		WO 04/029942 A1	08.04.2004
		WO 04/029941 A1	08.04.2004
		US 20040090888 A1	13.05.2004
		US 20040062160 A1	01.04.2004

Form PCT/ISA/210 (patent family annex) (January 2004)

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PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

LEE, Young-Pil

The Cheonghwa Building, 1571-18, Seocho-dong, Seocho-gu,
Seoul 137-874, Republic of Korea

PCT

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

(PCT Rule 43bis.1)

Date of mailing
(day/month/year) 05 JULY 2004 (05.07.2004)

Applicant's or agent's file reference
SH-19504-PCT

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/KR2004/000928

International filing date (day/month/year)

22 APRIL 2004 (22.04.2004)

Priority date(day/month/year)

01 MAY 2003 (01.05.2003)

International Patent Classification (IPC) or both national classification and IPC

IPC7 G11B 7/004

Applicant

SAMSUNG ELECTRONICS CO., LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR



Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

LEE, Bo Hyung

Telephone No. 82-42-481-5701



Form PCT/ISA/237 (cover sheet) (January 2004)

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2004/000928

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2004/000928

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1 - 38	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	1 - 38	YES
	Claims	NONE	NO
Industrial applicability (IA)	Claims	1 - 38	YES
	Claims	NONE	NO

2. Citations and explanations :

Claims 1-38 meet the criteria set out in PCT Article 33(2)-33(4), because the prior art does not teach or fairly suggest any of the embodiments as specifically set forth in Claims 1-38.

More specifically, none of the prior art teaches or fairly suggest the claimed method and apparatus of recording temporary management information identifying the defective area and the corresponding replacement area in a temporary defect management area of the recording medium, wherein position and state information regarding the defective area are recorded in the replacement area, determining whether recording medium defect management has been successfully completed, reading lastly recorded defect information from a replacement area, and updating defect management information in a defect management area(DMA) of the recording medium. Moreover, none of the prior art teaches or fairly suggest the claimed defect managed recording medium obtained using the same method.

Claims 1-38 are also considered to be industrially applicable.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2004/000928

Box No. VI Certain documents cited

1. Certain published documents (Rule 43bis.1 and 70.10)

	<u>Application No. Patent No.</u>	<u>Publication date (day/month/year)</u>	<u>Filing date (day/month/year)</u>	<u>Priority date (valid claim) (day/month/year)</u>
P, A	KR 2004-0028469 A	03/04/2004	11/01/2003	30/09/2002

Document KR-A-2004-0028469 discloses a method of managing defects in a write-once recording medium, which is not considered to be of particular relevance with the claimed invention.

2. Non-written disclosures (Rule 43bis.1 and 70.9)

<u>Kind of non-written disclosure</u>	<u>Date of non-written disclosure (day/month/year)</u>	<u>Date of written disclosure referring to non-written disclosure (day/month/year)</u>
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2004/000928

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

The acronym "SBM" is not consistent throughout the international application, which does not meet the requirements of PCT Rule 10.2. In the pages of 4, 5, 6, 14, 18 and in the claims of 27, 34, "SBM" means "spare bit map", but in the page of 8, it denotes "space bit map".

The acronym "DMA" is not consistent throughout the international application, which does not meet the requirements of PCT Rule 10.2. In the pages of 3, 4, "DMA" means "defect management area", but in the page of 10; it denotes "disc management area".

Page 14, line 9: replace "temporary management information(TDMS)" with "temporary defect management structure(TDMS)".

Claim 1, line 1: the number "1" is repeatedly written.

Claim 25, line 1: replace "the recording of" with "the reading of".

Claim 29, line 6: replace "to record" with "to read".

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